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Microstega homoculorum sp. n. – the most frequently observed lachryphagous moth of man (Lepidoptera, Pyralidae: Pyraustinae)

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Microstega homoculorum **sp. n. – the most frequently observed lachryphagous moth of man (Lepidoptera, Pyralidae: Pyraustinae) –** The lachryphagous moths referred to as *Pionea aureolalis* (Lederer) in previous studies of lepidopterous lachryphagy are shown to consist of two species, *Microstega acutangulata* (Swinhoe) and *Microstega homoculorum* sp. n. So far, *M. homoculorum* is reported only from SW China and N Thailand where it is far more common than *M. acutangulata*, which is found from NW India to SW China and W Malaysia. 44 cases involving male adults of *M. homoculorum* and *M. acutangulata* (ratio about 8:1) drinking human tears have been witnessed but the main hosts are large ungulates and elephants. Observations in a zoo add Rhinocerontidae, Hippopotamidae, Giraffidae and Marsupialia as new host families/orders of lachryphagous Lepidoptera. *Pyralis ochrealis* Moore is synonymized with *Botys aureolalis* Lederer which is provisionally transferred to *Microstega*, as is *Paliga contractalis* Warren. Neither is lachryphagous but *M. aureolalis* takes mammalian body fluids other than lachrymation.

Key-words: Lepidoptera - Pyralidae - tear-drinking - mammalian hosts - Thailand.

INTRODUCTION

The lachryphagous moth *Microstega homoculorum* sp. n., referred to as *Pionea aureolalis* (Lederer, 1863) in several papers (e.g. Büttiker, 1964; Bänziger, 1973, 1983, 1992), is of potential medical and veterinary significance as discussed in the ecological section of this paper. Together with *Pyralis ochrealis* Moore, 1877, *Paliga contractalis* Warren, 1896 and *Pionea acutangulata* Swinhoe, 1901, it is one of four species which, due to their superficial similarity, have been synonymized as *Pionea aureolalis*. However, for some time I have had reservations about their conspecificity on behavioural and morphological grounds: *Pyralis ochrealis* and *Paliga contractalis*

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apparently are not tear drinkers; the latter is clearly smaller and *M. homoculorum* consistently paler than the other species. Since the complex contains the moth which most frequently attacks human eyes, it is urgent to resolve the taxonomic identity of the species concerned.

Primary types of *ochrealis*, *contractalis* and *acutangulata* are in the Natural History Museum, London (BMNH), but efforts to locate the type of *aureolalis* proved unsuccessful in the four institutions where Lederer types are known to be kept. Through the courtesy of Mr M. Shaffer of the BMNH, who kindly checked MUNROE's (1958, 1970) lists of pyralid types in the BMNH and in the Zoological Institute, Academy of Sciences of Russia, St. Petersburg, it is evident that the *aureolalis* type is not in those two collections. My enquiries at the Museum für Naturkunde der Humboldt-Universität, Berlin and at the Naturhistorisches Museum Wien, were also negative. Rather than erect a neotype, Mr Shaffer suggested that this species is adequately defined by the type of *Pyralis ochrealis*, here considered to be a junior synonym of *aureolalis*, both with Sikkim as type locality. If a neotype for *aureolalis* were ever needed, it would have to be selected from a series of 4 specimens in the BMNH from Sikkim, which originate from the Lederer Collection and are probably conspecific with *ochrealis*. The moth found most often to trouble human eyes is not *aureolalis*, as previously assumed, nor is it any of the other named species, and it is here described as new.

There is a further species, *Pionea praepandalis* (Snellen), which superficially reminds *Pyralis ochrealis*, but it has not been synonymized with *Pionea aureolalis* and is not lachryphagous, hence it is not treated here. Its genitalia and feeding behaviour are closer to *Pyralis ochrealis* than to any of the other 4 species.

Genitalia studies of the relevant types (Mr M. Shaffer, pers. comm.) indicate that *ochrealis*, *contractalis* and *acutangulata* are different species, and that their generic classification will eventually have to be reassessed in a more comprehensive revision. They have traditionally been included in *Pionea* Guenée, 1845, which is a junior objective synonym of *Evergestis* Hübner, [1825], but the type species of *Pionea*, *Pionea margaritalis* Denis & Schiffermüller, 1775, is not congeneric with the species here discussed. For the present they are best included in the genus *Microstega* Meyrick, 1890 (type species *pandalis* Hübner, [1825]), which has been incorrectly synonymized with *Pionea*.

Type material is deposited in the Dept. Entomology, Fac. Agriculture, Chiang Mai University (DEFACU), the Natural History Museum, London (BMNH), the Muséum d'Histoire naturelle, Geneva, Switzerland (MHNG) and, when not specifically mentioned, provisionally kept in the author's collection for further study.

This is the eighth in a series of papers aiming to clarify the systematics of lachryphagous and other zoophilous Lepidoptera, the preceeding having dealt with a notodontid (BÄNZIGER, 1989).

Microstega Meyrick, 1890

The generic placement of the following species in *Microstega* is, as mentioned above, provisional. While *M. acutangulata* and *M. homoculorum* sp. n. are evidently

congeneric, the other two species probably each belong to a different genus. A comprehensive revision of all related genera is needed to clarify their status.

Microstega homoculorum sp. n. Figs. 1, 2, 7-10, 15-18

Pionea aureolalis (auctorum nec Lederer): BÜTTIKER, 1964, *Verhandl. Naturf. Ges. Basel* 75: 233. BÜTTIKER, 1964, *World Health Organization WHO/EBL/*29.64: 7. BÜTTIKER, 1967 (1966), *Mitt. Schweiz. Ent. Ges.* 39: 156, 166, 174. BÄNZIGER & BÜTTIKER, 1969, *J. Med. Ent.* 6: 53, 56. BÄNZIGER, 1973 (1972), *Rev. suisse Zool.* 79: 1392, 1398, 1401, 1402, 1424, 1436-1438, 1449. BÄNZIGER, 1975, *Acta trop.* 32: 140. BÜTTIKER & NICOLET, 1975, *Rev. Elev. Méd. vét. Pays trop.* 28: 328. BÄNZIGER, 1983, *Mitt. Schweiz. Ent. Ges.* 56: 76, 79, 80, 82. BÄNZIGER, 1988, *Heteroc. Sumatr.* 2: 143. BÄNZIGER, 1988, *Nat. Hist. Bull. Siam Soc.* 36: 43. BÄNZIGER, 1989, *Mitt. Schweiz. Ent. Ges.* 62: 218. BÄNZIGER, 1990, *New Scientist*, 128, 1744: 51. BÄNZIGER, 1992, *Nat. Hist. Bull. Siam Soc.* 40: 92, 99, 101. PETERS, 1992, *Colour atlas of Arthropods in clinical medicine:* 266, Table 30, 269, Fig. 895.

Pionea aureolis (misspelling): BÄNZIGER, 1983, *Mitt. Schweiz. Ent. Ges.* 56: 73.

TYPE MATERIAL. Holotype ♂, *Thailand*: Chiang Mai Prov., Doi Suthep, Mae Nai, 1150 m, 3.xi.1988, Bänziger leg., genitalia slide 3027 (BMNH).

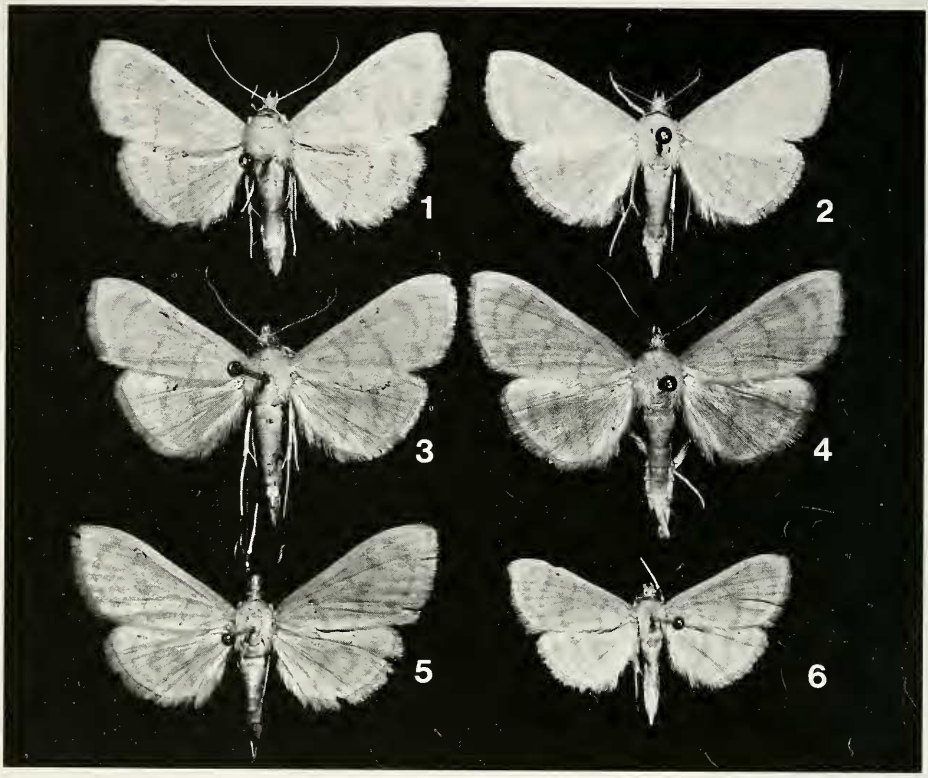
PARATYPES. 7 ♂, ibid. but 3.xii.1981 (DEFACU), 16.xi.1986, 6.xi.1987, 1., 3x14.viii.1988, genitalia slides 2361, 2638 (MHNG), 2804, 3026. 1 ♂, ibid. but Khun Chang Khian, 1340 m, 30.vii.1982. 1 ♂, ibid. but Sangwal, 1300 m, 20.ix.1986, genitalia slide 2303. 4 ♂, ibid. but Konthatharn Waterfall, 660 m, 4x5.xi.1987, genitalia slides 2631, 2632, 2633, 2634. 23 ♂, ibid. but area of Huay Kaeo, 330-370 m, 15.vii., 2x27.viii. (DEFACU), 2x1., 9., 2x12.xi.1972, 12. v., 3x19.v.1973, 2x6.xi. 1981, 12.xi.1990, 2x28., 31.x., 2x3., 5., 18.xi.1991, 18.vii.1992, genitalia slides 1001, 2227, 2228, 3008. 2 ♂, ibid. but Mae Taeng Distr., Huay Nam Dang, 1690 m, 2x5.viii.1986, genitalia slides 2234, 2246. 1 ♂, ibid. but Pong Düad, 650 m, 6.x.1982, genitalia slide 1458. 6 ♂, ibid. but Chiang Dao Distr., Kaeng Pan Tao area, 360-680 m, 26.x.1980, 10.vii.1982, 23.iv., 16.ix.1983 (BMNH), 24.ix.1983 (MHNG), 13.xi.1986, genitalia slides 1326, 1556, 2358. 1 ♂, ibid. but Ban Yang Pong, 500 m, 19.x.1990. 1 ♂, ibid. but road Chiang Dao-Phrao, 600 m, 15.xi.1989. 2 ♂, ibid. but Doi Chiang Dao, NW Pass, 1150 m, 24.v., 10.viii.1988, genitalia slide 2754. 4 ♂, Lamphoon Prov., Lii, 400 m, 4x20.viii.1980, genitalia slide 604, all Bänziger leg.

Other material [not included in paratype series]. SW China: 6 ♂, Yünnan Prov., Hsiao Meng Lun, 600 m, 3x15., 3x17.vi.1981, genitalia slides 934, 1181, 1182, all Bänziger leg.

DERIVATION OF NAME. The combination *homoculorum*, 'of human eyes', refers to the moth's habits of visiting the eyes of man.

DIAGNOSIS. Wingspan 23-27 mm. Overall colour pale yellow. Wing markings as shown in Figs. 1, 2. Medial line near the fore wing margin straight or convex. Male genitalia with tegumen distally rounded or slightly concave. Aedeagus with a patch of small cornuti near the distal end of the vesica.

DESCRIPTION. Male (Figs. 1, 2). Wingspan: 23-27 mm (one specimen among 52 measured is 28 mm), Ø = 25 mm. Head, thorax, abdomen, wings above pale yellow, paler on the underside, but head below the palps is pure white as are dorsally the fore and mid tarsi, and ventrally the mid tibiae. The fore tibia is dorsally white with a broad, dark yellow cross band in the middle. Filiform antennae are yellow. The proboscis, dorsally covered with white scales near the base, is 11 mm long, very thin. It has only minute sensillae on the distal section. Line markings of both wings upperside are faintly



FIGS 1-6

Species of *Microstega*. - 1-2. *M. homoculorum* sp. n. - 3-4. *M. acutangulata*. - 5. *M. aureolalis*. - 6. *M. contractalis*.

to clearly darker than the background. The arrangement of the basal, antemedial, medial and postmedial line are as shown in Figs. 1, 2. The medial line near the costa of the fore wing is straight or convex. A diffuse, occasionally very faint, dot is sometimes (5 out of 52 specimens) present near the costa between basal and antemedial line. Wings underside without markings.

Female. None caught (only males are lachryphagous).

Genitalia. Details as shown in Figs. 7-10. Distally the valve is relatively narrow, generally less than 1/2 to about 3/4 of the width of the aedeagus, and has a small projection on its ventral margin. The tegumen is rounded or sligtly concave distally and lacks a finger-like projection proximally. The sclerotized, tooth-like structure of the sacculus, though rather variable, is relatively broad-based, short and only gently recurved. In some specimens it may have a tiny denticulation on its base. The ampulla tends to be rather massively club-like. Near the distal end of the aedeagus is a patch with spur-like sclerotizations and near the tip of the vesica is a patch with distinctive cornuti.

Immature stages. Unknown.

Microstega acutangulata (Swinhoe), comb. n. Figs. 3, 4, 11-14

Pionea acutangulata Swinhoe, 1901, Ann. Mag. nat. Hist. (7)8: 26.

TYPE MATERIAL EXAMINED. Holotype: Jaintia Hills 1901-178; *Pionea acutangulata* Swinhoe Type ♂, Pyralidae Brit. Mus. slide no. 8679 ♂. [BMNH].

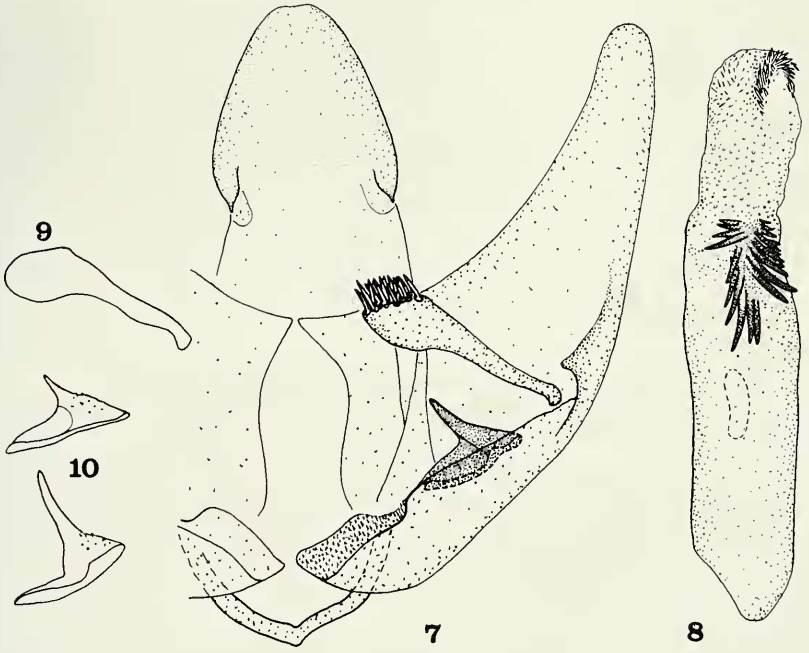
OTHER MATERIAL. *Thailand:* 1 ♂, Chiang Mai Prov., Doi Suthep, Huay Kaeo area, 350 m, 14.vii.1972. 4 ♂, ibid. but Doi Chiang Dao, NW Pass, 1150 m, 3x1.vi., 27.vii.1988, genitalia slide 2734, 2757, 2758, 2767. 1 ♂, ibid. but Ang Khang, 1400 m, 22.iv.1987, genitalia slide 2436. 4 ♂, Lamphoon Prov., Lii, 400 m, 4x20.viii.1980, genitalia slides 603, 605, 2229.

SW China: 1 ♂, Yünnan Prov., Hsiao Meng Lun, 600 m, 15.vi.1981, genitalia slide 933.

NW India: 7 ♂, Uttar Pradesh, Bhimtal, 1460 m, 24., 27., 29.vi., 2x16., 17., 18.vii.1987, genitalia slides 2500, 2525, 2555, 2556, 2559, 2595, 2597.

W Malaysia: 1 ♂, Kuala Lumpur, National Zoo, 3.vi.1971, genitalia slide 2231, all Bänziger leg.

DIAGNOSIS. As *M. homoculorum* but wingspan larger (26-31 mm, Ø = 28 mm, n = 19), overall somewhat darker yellow and with the line markings of the wings upperside more distinct. The medial line of the fore wing tends to be more removed from the antemedial and closer to the postmedial. The aedeagus lacks the patch of distinct cornuti near the tip of the vesica. The distal half of the valve is distinctly



FIGS 7-10

Male genitalia of *Microstega homoculorum* sp. n.; 8. aedeagus, dotted circle showing approximate position of cornuti in aedeagus with unextruded vesica; 9. variation of the ampulla; 10. variations of the tooth-like structure of the sacculus.

broader (generally only slightly narrower to wider than the aedeagus) and the projection on its ventral margin longer. The tegumen has distally a small bifid extension and proximally a finger-like projection (not always clearly visible). The sclerotized, tooth-like structure of the sacculus, though rather variable, is narrower based, longer and more recurved. The ampulla tends to be more slender.

Microstega aureolalis (Lederer), comb. n. Fig. 5

Botys aureolalis Lederer, 1863, Wien. ent. Monatschr. 7: 375, 473.
Pyralis ochrealis Moore, 1877, Proc. zool. Soc. Lond. 1877: 614.

TYPE MATERIAL EXAMINED. Holotype of *B. aureolalis*: Sikkim, not found (possibly lost).

LECTOTYPE of *P. ochrealis*: Sikkim, Moore Coll. 94-106; *Pyralis ochrealis* Moore (Type) ♀ [sic], Pyralidae Brit. Mus. slide no. 8678 ♂. [BMNH] lectotype hereby designated.

OTHER MATERIAL. *Thailand:* 1 ♂, Chiang Mai Prov., Doi Suthep, Chang Khian (site A), 1340 m, 27.x.1980, genitalia slide 2230. 1 ♂, ibid. but Nong Hoi, 1100 m, 25.x.1981, genitalia slide 990. 2 ♂, ibid. but Doi Chiang Dao, NW Pass, 1150 m, 15.x.1986, 16.xi.1987, genitalia slides 2650, 2763. 1 ♂, ibid. but Kae Noi, 1100 m, 12.vi.1982, genitalia slide 1293. 1 ♂, ibid. but Ang Khang, 1400 m, 21.v.1982, all Bänziger leg.

DIAGNOSIS. With 26-30 mm (Ø = 27 mm, n = 6) wingspan somewhat larger than *M. homoculorum*. Slightly darker yellow overall. Medial line near the costa concave (convex in *M. homoculorum* and *M. acutangulata*). Unlike in the other species treated here the nervature tends to be darker than the background, giving the wing the impression of a reticulation. In the genitalia the ampulla is very short and broad-based. The sacculus has several very long, sharply pointed, sclerotized projections. Distally the tegumen has two spur-like sclerotized projections, one curved outwardly the other curved inwardly. Aedeagus nearly twice as long, enlarged at both ends.

Microstega contractalis (Warren), comb. n. Fig. 6

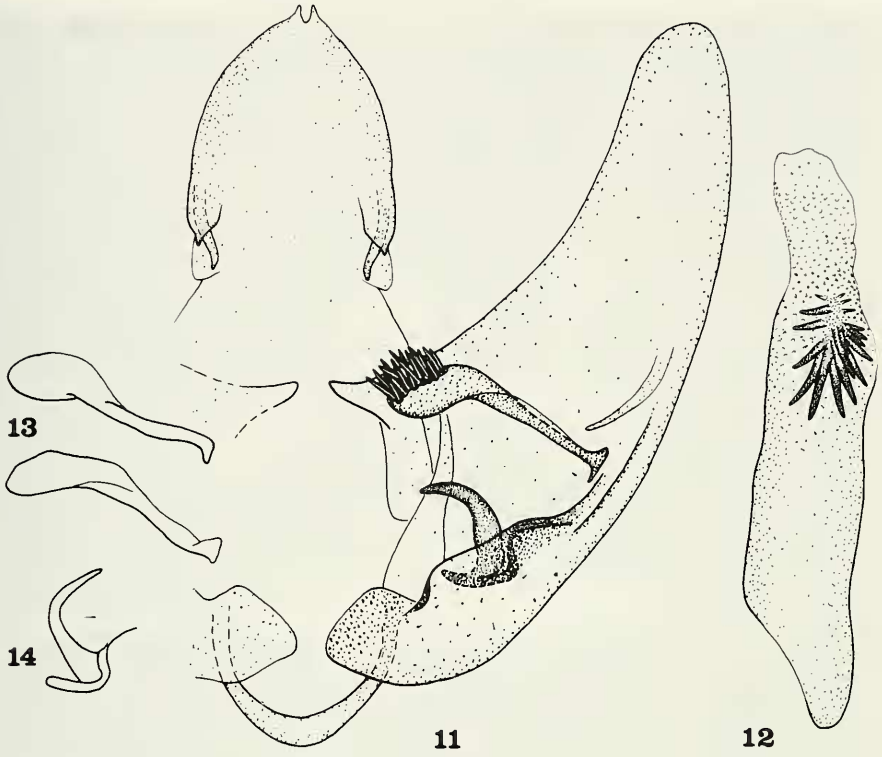
Paliga contractalis Warren, 1896, Ann. Mag. nat. Hist. (6)18: 123.

TYPE MATERIAL EXAMINED. Lectotype: Khasis, *Paliga contractalis* Warren Type ♂, Pyralidae Brit. Mus. slide no. 8677 ♂. [BMNH] lectotype hereby designated.

OTHER MATERIAL. *Thailand*: 2 ♂, Chiang Mai Prov., Doi Suthep, Khonthatharn Waterfall, 660 m, 9.xii.1985, 5.xi.1987, genitalia slide 2035. 2 ♂, ibid. but Mae Taeng Distr., Pong Düad, 650 m, 2x6.x.1982, genitalia slide 1428. 1 ♂, ibid. but Doi Chiang Dao, NW Pass, 1150 m, 17.vii.1986, genitalia slide 2218. 4 ♂, ibid. but Kae Noi, 1100 m, 4x12.vi.1981, genitalia slides 1294, 1295. 1 ♂, ibid. but Ang Khang, 1400 m, 7.xi.1991.

NW India: 3 ♂, Uttar Pradesh, Bhimtal, 1490 m, 21.vi., 18., 19.vii.1987, genitalia slide 2760, all Bänziger leg.

Diagnosis. With 18-22 mm (Ø = 20 mm, n = 10) wingspan clearly smaller than *M. homoculorum*. Also, the line markings of the wings tend to be less curved. The genitalia lack the sclerotized, tooth-like projection of the sacculus. Valve stouter, tegumen short and broad with two small but sharp extensions. Aedeagus without the patch of spur-like sclerotizations but patch of cornuti on vesica far more evident.



FIGS 11-14

Male genitalia of *M. acutangulata*; 12. aedeagus; 13. variations of the ampulla; 14. variation of the tooth-like structure of the sacculus.

ECOLOGICAL OBSERVATIONS ON *M. HOMOCULORUM*, WITH NOTES ON THE OTHER THREE SPECIES OF *MICROSTEGA*

DISTRIBUTION. – So far, *M. homoculorum* is reported from the upper north of N Thailand and the southernmost area of Yünnan, SW China, where it is sympatric with *M. acutangulata*. The two species are, in fact, syntopic at 4 sites. At two of them, Lii (Lamphoon Prov., Thailand) and Hsiao Meng Lun (Yünnan Prov., China) they were found on the same night, whereas at the other two sites, Doi Suthep and Doi Chiang Dao (Chiang Mai Prov., Thailand) they were caught on different nights. Syntopy is a further evidence that distinction of the two on a species, rather than subspecies, level is appropriate. *M. acutangulata*, which I also caught in W Malaysia and NW India (Uttar Pradesh), has a much wider distribution which encompasses completely that of *M. homoculorum*. However, *M. homoculorum* is far more common in N Thailand. The specimen seen sucking lachrymation on a water buffalo in N Laos (BÄNZIGER, 1983)

escaped and cannot be attributed to either of the two species, but *M. homoculorum* is the more likely in this area.

BIOTOPE. – *M. homoculorum* was found from 300 to 1700 m a.s.l. but was more common at the lower elevations. The forest types range from the dry Dipterocarp and mixed deciduous, to the hill evergreen. The moth was encountered more often in open, disturbed habitats than in the forest, though generally not very far from it. The other three *Microstega* species essentially fly in the same habitat although I have not yet caught *M. aureolalis* below 1000 m.

ANIMAL HOSTS. – Since earlier studies made no distinction between *M. homoculorum* and *M. acutangulata*, and because collections made during the oldest surveys, viz. in 1963 (BÜTTIKER, 1964) and 1965-1967 (BÄNZIGER, 1973), are not available to me, it is not known which species was found on which host. In my present collection (1971-1992), much larger than the older ones combined, are 55 *M. homoculorum* and 10 *M. acutangulata* from N Thailand. I take 6:1 as the nearest approximation of the true frequency ratio of the two species and also as the probability with which the oldest host records pertain to the two species. These host records are zebu (*Bos taurus indicus* L.), water buffalo (*Bubalus bubalis* (L.)), sambar deer (*Cervus unicolor* Kerr), pig (*Sus scrofa* L.), and Asian elephant (*Elephas maximus* L.) (BÜTTIKER, 1964; BÄNZIGER, 1973). The latter found male months that sucked mammalian body fluids including lachrymation also on banteng (*Bos javanicus* D'Alt.), goat (*Capra hircus* L.), and horse (*Equus caballus* L.). The new collections confirm zebu and horse as hosts of *M. acutangulata*, and also the water buffalo for *M. homoculorum*, but there is little doubt that all mentioned mammals can be hosts of both species.

During the most recent studies in the Chiang Mai Zoo (1990-1993) I have found *M. homoculorum*, among several other moth species, to imbibe tears from mammals which as yet were not known to be hosts of lachryphagous Lepidoptera: gayal (*Bos frontalis* (Lambert)), Burchell's zebra (*Equus burchelli* (Gray)), great one-horned rhinoceros (*Rhinoceros unicornis* L.), hippopotamus (*Hippopotamus amphibus* L.), giraffe (*Giraffa camelopardalis* (L.)), and western grey kangaroo (*Macropus fuliginosus* (Desmarest)) (Figs. 16-18).

The latter four are of particular interest as they belong to new host families (Rhinocerontidae, Hippopotamidae, Giraffidae) and the last one even to a new host order, the Marsupialia. With the three newly recorded families now all Old World ungulate families have representatives as hosts of lachryphagous Lepidoptera except the Tragulidae. These are unlikely hosts because of their diminutive size and high sensitivity.

The finding of the Marsupialia as a new host order is very unexpected because kangaroos had ben investigated over a period of 10 months in the Zoo Negara, Kuala Lumpur, Malaysia, where no months were seen attacking the marsupials although ungulates in nearby cages were visited by tear drinkers. The new finding is not the result of a 'freak' event: during 30 investigations I witnessed 9 cases of *M. homoculorum* and 16 cases of other pyralids, noctuids and geometrids settling at the eyes of the kangaroos. Consequently my deduction (BÄNZIGER, 1988) that lachryphagy could not have evolved in Papua New Guinea and Australia due to lack of native hosts is

FIGS 15-16

Microstega homoculorum drinking tears from the eye of the author who photographed himself. Doi Suthep, 660 m, 5.xi.87; 16. *Microstega homoculorum* sucking lachrymation from the eye of a grazing western grey kangaroo. Huay Kaeo, 28.x.91.

FIGS 17-18

Microstega homoculorum imbibing lachrymation from the eye of a great one-horned rhinoceros. Huay Kaeo, 12.xi.90; 18. *Microstega homoculorum* at the eye of a very young hippopotamus. Huay Kaeo, 18.xi.91.

invalidated, and *Paliga damastesalis* Walker, which fed on ungulate and human eyes in Papua New Guinea, must not necessarily be a newcomer to those areas. It is almost certain that this, and possibly other species, will be confirmed to feed from large wild marsupials as well as introduced ungulates – domestic or feral – and probably man, also in Australia.

M. aureolalis and *M. contractalis* apparently are not lachryphagous; both were mostly caught at light traps but *M. aureolalis* was also observed sucking urine and skin-secretions (smeared off, not on the host).

MAN AS A HOST (Fig. 15). – While *M. homoculorum* is by no means the most common of over 100 species of Geometridae, Pyralidae, Notodontidae, Thyatiridae, Noctuidae and Sphingidae taking mammalian tears, it is remarkable as the most frequent among 23 species so far known to settle at human eyes (BÄNZIGER, 1992 and in prep.). *M. homoculorum* and *M. acutangulata* together sucked from the author's eyes on 40 instances, and on 4 more from the eyes of his colleagues or assistants. Based on the assumed frequency ratio of 6:1 this would roughly amount to about 38 successful attacks by *M. homoculorum* and 6 by *M. acutangulata*. Based on the actual specimens caught (which are fewer as quite a number of individuals escaped) the ratio is 8:1, which would amount to 39 and 5 cases respectively. These 39 feeding acts of *M. homoculorum* compare with 22 successful feedings by the pyralid *Filodes mirificalis* Lederer, 8 by the notodontid *Pydnella rosacea* Hampson, 6 each by geometrid *Hypochrosis flavifusata* (Moore) and pyralid *Paliga damastesalis* on human eyes.

FEEDING BEHAVIOUR. – Only male adults of the nocturnally active *M. homoculorum* (and *M. acutangulata*) are lachryphagous. Attacks on the author tended to occur erratically. Sometimes more than a year passed without a moth visiting his eyes, sometimes visits were sporadic at irregular intervals, and very occasionally many occurred during a single night. The activity of any moth probing one's eye is a rather unpleasant experience but compared to such aggressive tear drinkers as *Chaeopsestis ludovicae* Le Cerf (Thyatiridae) and *Tarsolepis elephantorum* Bänziger (Notodontidae), *M. homoculorum* is a very gentle visitor. The thyatirids and notodontids painfully claw the conjunctiva of both animals and man (BÄNZIGER, 1992) using their fore tarsi and at times even their middle tarsi. *M. homoculorum* is small, exhibits unobtrusive behaviour, has a thin, very flexible proboscis with only minute sensillae and is thus well adapted to suck fluids gently without causing damage or undue irritation to eye tissues. Tough hosts, such as large ungulates, rarely display any reaction to this moth. Thus the dangers of pathogen transmission would appear to be low. At the same time, however, *M. homoculorum* generally remains undetected by animals and continues feeding undisturbed for 5 minutes or more till satiation, since it causes little discomfort. Should *M. homoculorum* be proven to be a pathogen vector where mechanical damage is not necessary for transmission, the moth would have more time to transmit pathogens than the pain causing tear drinkers.

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eye during one of those glorious nights when lachryphagous moths display concerted attacks on man. Mr. Supot Methaphiwat, Director, Chiang Mai Zoo, gave permission for nocturnal investigations. Mr. W. Nässig, Frankfurt, assisted with nomenclature. Miss Saengdow Panthi helped typing the manuscript.

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